

Serial No. 10/715,569
August 17, 2005
Reply to the Office Action dated May 20, 2005
Page 6 of 11

REMARKS/ARGUMENTS

Claims 17 and 26 are pending in this application. By this amendment, Applicants cancel claims 18-24 and 27-30 and amend claim 17.

Applicants have canceled claims 18-24 and 27-30 because these claims are directed to non-elected species, and there are no generic or linking claims present in the application. Applicants reserve the right to file a divisional application to pursue prosecution of non-elected claims 18-24 and 27-30.

The Title of the Invention was objected to for allegedly not being descriptive. Applicants have amended the Title of the Invention so as to be descriptive. Accordingly, Applicants respectfully request reconsideration and withdrawal of this objection.

The Abstract of the Disclosure was objected to for allegedly not being directed to the claimed invention. Applicants have replaced the Abstract of the Disclosure with an Abstract that is directed to the claimed invention. Accordingly, Applicants respectfully request reconsideration and withdrawal of this objection.

Claim 17 has been amended to correct minor informalities contained therein.

Claims 17 and 26 were rejected under 35 U.S.C. §102(e) as being anticipated by Tabota et al. (U.S. 5,991,988).

Claim 17 recites:

"A method of manufacturing a piezoelectric component comprising the steps of:

printing an internal electrode and a dummy electrode on a green sheet;

printing a floating electrode on a green sheet;

stacking a plurality of green sheets, each having the internal electrode and the dummy electrode printed thereon, and the green sheet on which the floating electrode is printed, to obtain a layered product in which at least one floating electrode layer is arranged in at least one of the green sheets between the adjacent internal electrodes in the stacking direction and/or the green sheets outside the outermost internal electrodes in the stacking direction, a plurality of the internal electrodes are extended to opposite first and second sides alternately in the thickness direction, and the dummy electrode

Serial No. 10/715,569

August 17, 2005

Reply to the Office Action dated May 20, 2005

Page 7 of 11

is arranged between an end of the internal electrode opposite to the side extended to one of the sides and the other side to which the internal electrode is not extended;

firing the layered product to obtain a sintered ceramic compact body;

respectively forming first and second external electrodes on the first and second sides of the sintered ceramic compact body; and

applying a DC electric field between the first and second external electrodes to polarize the sintered ceramic compact body." (emphasis added)

With the unique combination of features and method steps recited in Applicants' claim 17, including the features of "printing an internal electrode and a dummy electrode on a green sheet," "printing a floating electrode on a green sheet" and "stacking a plurality of green sheets, each having the internal electrode and the dummy electrode printed thereon, and the green sheet on which the floating electrode is printed, to obtain a layered product in which at least one floating electrode layer is arranged in at least one of the green sheets between the adjacent internal electrodes in the stacking direction and/or the green sheets outside the outermost internal electrodes in the stacking direction, a plurality of the internal electrodes are extended to opposite first and second sides alternately in the thickness direction, and the dummy electrode is arranged between an end of the internal electrode opposite to the side extended to one of the sides and the other side to which the internal electrode is not extended," Applicants have been able to produce multilayer piezoelectric components which minimize variations in component characteristics.

The Examiner alleged that Tabota et al. teaches each and every method step and feature recited in Applicants' claim 17, including "printing an internal electrode (23, Fig. 4) and a dummy electrode such as read (25) on a green sheet, printing a floating electrode such as (24) on a green sheet, and stacking a plurality of green sheets, each having the internal electrode and the dummy

Serial No. 10/715,569
August 17, 2005
Reply to the Office Action dated May 20, 2005
Page 8 of 11

electrode printed therein, and the green sheet on which the floating electrode is printed, to obtain a layered product in which at least one floating electrode layer is arranged in at least one of the ceramic layers between adjacent internal electrodes in the stacking direction and/or the ceramic layers outside the outermost internal electrodes in the stacking direction..." Applicants respectfully disagree.

First, element 23 of Tabota et al., which the Examiner alleged corresponds to the internal electrode recited in Applicants' claim 17, is specifically disclosed as a "surface electrode", not an internal electrode. As clearly seen in Fig. 4 of Tabota et al., the electrode 23 is disposed on an outer surface of the piezoelectric ceramic body 22, not on the interior or inside of the piezoelectric ceramic body 22. Note the description at col. 8, lines 43-44, of the internal electrode 31 formed in the piezoelectric ceramic body 22. Since the term "internal electrode" has a clear and definite meaning in the art, i.e., an electrode which is disposed within the interior of a multilayer substrate such that the internal electrode is disposed between two layers of the multilayer substrate, Applicants respectfully submit that the surface electrode 23 of Tabota et al. cannot be fairly construed as an internal electrode as recited in Applicants' claim 17.

Furthermore, the paragraph bridging cols. 9 and 10 of Tabota et al. specifically distinguishes the surface electrode 23 from an internal electrode. Particularly, the paragraph bridging cols. 9 and 10 of Tabota et al. discloses that "the mother piezoelectric ceramic body is polarized through the internal electrodes and the first to third surface electrodes...." Thus, contrary to the Examiner's allegations, Tabota et al. specifically discloses that surface electrode 23 is not an internal electrode.

Second, element 25 of Tabota et al., which the Examiner alleged corresponds to the dummy electrode recited in Applicants' claim 17, is disclosed

Serial No. 10/715,569
August 17, 2005
Reply to the Office Action dated May 20, 2005
Page 9 of 11

as being a "surface electrode", not a dummy electrode. Furthermore, the surface electrode 25 is connected to the surface electrodes 23 and 24 via a connecting electrode 26. Thus, the surface electrode 25 is electrically connected with the surface electrode 23, which the Examiner alleged corresponds to the internal electrode, and electrical current clearly passes through both of the surface electrodes 23 and 25. Therefore, Applicants respectfully submit that the surface electrode 25 of Tabota et al. cannot be fairly construed as a dummy electrode as recited in Applicants' claim 17.

Third, element 24 of Tabota et al., which the Examiner alleged corresponds to the floating electrode recited in Applicants' claim 17, is disclosed as being a "surface electrode", not a floating electrode. The surface electrode 24 of Tabota et al. is electrically connected to the surface electrodes 23 and 25 via connecting electrode 26. Thus, Applicants respectfully submit that the surface electrode 24 clearly cannot be fairly construed as the floating electrode recited in Applicants' claim 17.

In addition, the surface electrode 24 of Tabota et al. is disposed on the same green sheet as the surface electrodes 23 and 25, which the Examiner alleged correspond to the internal electrode and the dummy electrode recited in Applicants' claim 17. Since each of the surface electrodes are disposed on the same green sheet, and the surface electrode 24, which the Examiner alleged corresponds to the floating electrode recited in Applicants' claim 17, is not disposed on a different green sheet from the surface electrodes 23 and 25, Tabota et al. certainly does not and cannot teach or suggest the step of "stacking a plurality of green sheets, each having the internal electrode and the dummy electrode printed thereon, and the green sheet on which the floating electrode is printed, to obtain a layered product in which **at least one floating electrode layer is arranged in at least one of the green sheets between the adjacent internal electrodes in the stacking direction and/or the green sheets**

Serial No. 10/715,569
August 17, 2005
Reply to the Office Action dated May 20, 2005
Page 10 of 11

outside the outermost internal electrodes in the stacking direction, a plurality of the internal electrodes are extended to opposite first and second sides alternately in the thickness direction, and the dummy electrode is arranged between an end of the internal electrode opposite to the side extended to one of the sides and the other side to which the internal electrode is not extended" (emphasis added).

The surface electrode 24 of Tabota et al. is neither arranged on a green sheet which is between adjacent internal electrodes, nor arranged on a green sheet which is outside the outermost internal electrodes in the stacking direction. In contrast, the surface electrode 24 is disposed on the same green sheet on which the surface electrodes 23 and 25 are disposed.

Accordingly, Applicants respectfully submit that Tabota et al. fails to teach or suggest the unique combination of method steps and features recited in Applicants' claim 17.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 17 under 35 U.S.C. § 102(e) as being anticipated by Tabota et al.

In view of the foregoing amendments and remarks, Applicants respectfully submit that claim 17 is allowable. Claim 26 depends upon claim 17, and is therefore allowable for at least the reasons that claim 17 is allowable.

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

Serial No. 10/715,569
August 17, 2005
Reply to the Office Action dated May 20, 2005
Page 11 of 11

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Date: August 17, 2005


Attorneys for Applicant

Joseph R. Keating
Registration No. 37,368

Christopher A. Bennett
Registration No. 46,710

KEATING & BENNETT LLP
10400 Eaton Place, Suite 312
Fairfax, VA 22030
Telephone: (703) 385-5200
Facsimile: (703) 385-5080